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Notes on Calochortus

CHARLES VANCOUVER PIPER

In the Proceedings of the Academy of Natural Sciences of Philadelphia, for 1868, Professor Alphonso Wood described *Calochortus elegans nanus* based on specimens collected on "High Hills, Yreka. Also on Mt. Hood." In Dr. Sereno Watson's treatment of the genus (Proc. Am. Acad. vol. **15**), Professor Wood's subspecies is recognized and *C. Lyallii* Baker, Jour. Linn. Soc. **14**: 305, is cited as a synonym. The Mt. Hood plant has since been collected several times, and in Howell's Flora of Northwest America is well described under the name *C. Lyallii* Baker. Wood's name, *C. elegans nanus*, is common on herbarium specimens, but without exception all such specimens seen are merely small plants of true *C. elegans* Pursh, and have nothing to do with the original specimens of Wood.

To clear up the confusion an endeavor was made to find Wood's type specimens, but according to Dr. H. H. Rusby these are not now to be found in Wood's herbarium. Specimens of both collections are, however, in the Gray Herbarium labeled respectively "Mts. W. of Yreka, June, 1866" and "Mount Hood, August 20, 1866."

A study of these specimens reveals two entirely distinct species, both of which are distinct from *C. Lyallii* or any other described species. The following descriptions and notes will make clear the confusion which has existed.

Calochortus nanus (Wood)

Calochortus elegans nanus Wood, Proc. Acad. Phila. **1868**: 168. 1868.

Bulbs ovate, deep-seated, 2–3 cm. long: stems erect, 10–15 cm. long, exceeded by the solitary leaf, 1–5-flowered: leaf linear or linear-lanceolate, acute, 10–25 cm. long, 2–7 mm. wide, not paler beneath: bracts lanceolate: sepals oblong-ovate, acute or acuminate, blue-tinged, 10–15 mm. long, thinnish, slightly arched at base, without spot at base: petals rhombic-ovate, faintly tinged with blue, evenly hairy all over the inner face and ciliate, 15–18 mm. long; scale about one third as broad as the petal at its place of insertion, nearly semicircular, but little incised: stamens one third as long as petals, the acuminate anthers as long as the flattened filaments: style short: capsules nodding, orbicular when mature, 1.5 cm. long.

This species is nearer true *C. elegans* Pursh than any other Californian species. It is most easily distinguished by the character of the scale, which in *C. elegans* is half as wide as the petal or more, and deeply laciniate into many narrow segments.

The original specimens of Wood are very slender, but later collections show that the species becomes at least as large as *C. elegans.* The species seems to be rare and is not accounted for apparently in any recent treatment of the genus. Only the following specimens have been seen:

"Mts. W. of Yreka," *A. Wood 967*, June, 1866.

Castle Crags, in pine woods, *Piper 6398*, May 30, 1904.

Sissons, in dry woods, *Applegate 725*, May 28, 1895.

Siskyou Mountains at the summit, *Howell*, June 16, 1884.

The last locality may be in Oregon; the others are in California.

CALOCHORTUS SUBALPINUS Piper, Contr. U. S. Nat. Herb. 11: 195. 1906

Bulbs ovate, 2–3 cm. long, the outer coats dark: stems flexuous, erect, 15–20 cm. high, usually exceeded by the solitary leaf, 1–3-flowered: leaf linear-lanceolate, acuminate, 3–8 mm. wide, paler beneath: bracts lanceolate, long-acuminate, 2–3 cm. long: sepals lance-ovate, acuminate, somewhat scarious on the margins, 1.5–2.5 cm. long, 6–9-nerved, the base strongly arched, forming a shallow pit inside, this marked by a purple spot: petals cream-colored, purplish at base, obovate or rhombic-orbicular, 2–3 cm. long, slightly erose at margin, sparsely villous over the upper face above the striate, minutely puberulent gland, excepting a narrow portion near the apex; scale narrow, entire, extending in a gentle curve nearly across the petal and covered with long retrorse hairs: filaments broadly wing-margined, equaling the long-beaked anthers: capsules nodding, narrowly elliptical, rather acutish at each end, 2–3 cm. long, beaked by a style 1–2 cm. long.

A subalpine species, closely allied to *C. Purdyi* Eastwood, which differs in having thinner sepals lacking the pit at base;

more villous petals without the naked apical area; less villous scales which are very strongly arched; a much thinner, perfectly smooth gland; and merely acuminate, not beaked anthers.

Specimens of this species have been examined as follows:

WASHINGTON: Mount St. Helens, *Coville 765*, July 18, 1898; Mount Adams, *Henderson 52*, 1883; Klickitat river, *Flett 1124*; High mountains, Skamania County, *Suksdorf*, August 11, 1886; White Salmon, *Suksdorf*, 1879; Falcon Valley, *Suksdorf*, July 1, August, 1881; Falcon Valley, *Suksdorf*, 700 m. alt., 1879.

OREGON: Mount Hood, *A. Wood*, August 20, 1866; *Mrs. P. G. Barrett*, snow line, September, 1882; *Gorman*, September 23, 1896; *C. H. Merriam*, alt. 2000–2300 m., 1896; *Howell*, 1881; *M. A. Barber 230*, alt. 2500 m., August 26, 1899. Three Sisters, *Gorman 121*, July 21, 1903, alt. 2000 m.

This species has been mistaken for *C. apiculatus* Baker, but that has no scale on the petal. Specimens of this species sent to the British Museum have been compared with the type of *C. elegans Lobbii* Baker, Jour. Linn. Soc. **14**: 305, by Mr. C. H. Wright, who reports that the two are identical. This species is however very different from *C. Lobbii* Purdy, Proc. Calif. Acad. III. **2**: 122, which Purdy states was identified by Baker himself as his *C. elegans Lobbii*. A regrettable confusion has thus arisen in the synonymy through the use of the name *Lobbii* for two very distinct species.

CALOCHORTUS LYALLII Baker, Jour. Linn. Soc. **14**: 305. 1875

(Type collected by Lyall in "Columbia brittanica ad apicem montis alt. 5800 pedes inter fluv. Columbia et Yakima." This locality is the Wenache Mountains, Washington.)

Calochortus ciliatus Rob. & Seaton, Bot. Gaz. **18**: 238. 1893.

(Type in the Gray Herbarium, collected by Brandegee in the "Wenatchie Region.")

This species occurs in the Wenache and adjacent Cascade Mountains in Washington. It has been collected as follows:

Wenache Region, *Brandegee 1107*, 1883; Naches River, *Henderson 2485;* Wenache Mountains, *Whited 40* and *1139*, *Cotton 1266*, *1313*, *1657;* *Vasey 82*, 1892; Mount Stuart, *Sandberg &*

Leiberg 575; Peshastin, *Sandberg & Leiberg*, July, 1893; "North Branch of the Columbia," *Wilkes Expedition 1068.*

Specimens collected by Cotton have kindly been compared for me with the type of *C. Lyallii* by Mr. E. G. Baker, who states that they differ only in the relative length of the anthers to filaments. This character, however, varies with age. The species is very distinct from *C. elegans* and its immediate allies in having erect pods. It may readily be recognized by its narrow, acuminate, jagged-margined petals which excepting the scale are glabrous or only sparsely pilose, and by its abruptly subacute anthers. Thus far the species has been found only in Chelan, Kittitas and Yakima Counties, Washington.

CALOCHORTUS ELEGANS Pursh, Fl. Am. Sept. 240. 1814.

This is the type species of the genus and was collected by Lewis "on the headwaters of the Kooskoosky, Idaho." The exact locality was at Lewis and Clark's spring camp of 1806, opposite the present site of Kamiah, Idaho. The species is common in pine woods in the Bitter-Root Mountains of Idaho and the Blue Mountains of Washington and Oregon up to 2000 meters altitude. It does not seem to reach the Cascade Mountains at any point. It varies considerably as do other species in the breadth of the solitary leaf and in the size of the flowers. The smaller and larger forms were long ago named by Hooker, in the Flora Boreali-americana, *C. elegans major* and *C. elegans minor*, but these seem unworthy of botanical recognition.